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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/509,649	03/30/2000	ROBERT ARTHUR LEE	CU-2137TFP	7785

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EXAMINER	
CHANG, AUDREY Y	

ART UNIT	PAPER NUMBER
2872	

DATE MAILED: 09/27/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/509,649	LEE ET AL.	
	Examiner	Art Unit	
	Audrey Y. Chang	2872	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *03 August 2006*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *19,21-26,28 and 30-36* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) *19, 21-26, 28 and 30-36* is/are allowed.

6)☒ Claim(s) _____ is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Remark

- This Office Action is in response to applicant's amendment field on August 3, 2006, which has been entered into the file.
- By this amendment, the applicant has amended claims 19, 24 and 33.
- Claims 19, 21-26, 28 and 30-36 remain pending in this application.

Claim Rejections - 35 USC § 112

1. The following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

2. **Claims 19, 21-23, 24-26, 28, and 30-36 are rejected under 35 U.S.C. 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention.**

The reasons for rejections have been set forth in the previous Office Action.

Claims 19, 24 and 33 recited the features "grey scale region having a particular level of diffuse scattering of incident light", "non-diffracting gray scale region with diffuse scattering characteristics" and "non-diffracting light scattering regions". The **specification however fails to** give **explicit** teachings about what are **actual** physical structures that constitute "the grey scale region having a particular level of diffuse scattering of incident light" and the "non-diffracting gray scale region with diffuse scattering characteristics". **The specification fails** to teach specific *working examples* or *operable examples* of such claimed functions, which therefore **fails** to enable one skilled in the art to make and/or use the invention. The applicant is respectfully reminded that **the specification** needs to give **explicit teachings**

as what are the physical structures that will be considered as the "non-diffraction gray scale region". By saying this verse does not really give any actual teachings about the **structures**. If the structures are physical *grooves*, then such should be explicitly taught. The spacing, the size or any other features that give the "*different* non-diffraction gray scale region" must be explicitly taught. At this juncture, the specification **fails** to enable one skilled in the art to make and/or use the subject matters stated here. **No physical substantial knowledge concerning** the *grey scale regions* is given in the specification.

Claims 21-23, 28, 30-32, and 34-36 inherit the rejection from their respective base claims. **Clarifications are required.**

The applicant is respectfully noted that a "surface relief" DOES NOT considered to be a working example to the specific "non-diffraction grey-scale region" or the "grey scale region" for providing particular level of diffuse scattering. Since a surface relief can have diffractive structure, grooves, lines, rough surface, irregular or regular protrusions and caves etc. Simply recites "surface relief" does not give a structure that will give "grey scale region having different level of diffuse scattering of incident light". Also the applicant and any person skilled in the art would understand that even grating relief structure will only diffract light with *certain range* of wavelengths and for the light having wavelengths not in the range the grating relief structure will scatter the light in non-diffracting manner. The crucial factor in deciding "non-diffracting" and "diffracting" is therefore not just about the structure itself rather about the wavelength of the incident light as well. In this manner, the applicant further fails to explain what are the structure types that are *non-diffracting*. If one skilled in the art would construe the limitations concerning the "non-diffracting gray scale region type" then why can the applicant provide an example to demonstrate it? The specification at this juncture really provides NO working examples to demonstrate the claimed "non-diffraction grey scale regions with diffuse scattering characteristics". They are therefore not enable by the disclosure.

Applicant's arguments concerning the "randomly scattering surface" and different structures recited in the remark, do not overcome the rejections since none of them are in the claims and specification.

Claim Objections

3. **Claims 19, 21-23, 24-25, 28, and 30-36 are objected to because of the following informalities:**

(1). The **amended** phrase "wherein each grey scale region has one or more *microscopic* graphic elements, line art or text image" recited in claims 19, 24, and 33 is confusing since it is not clear how do these **microscopic** graphic elements relate to the "macroscopic graphic, line art and text image" referred in different part of the claims respectively. Does it mean that the microscopic graphic elements make up the macroscopic graphic?

Appropriate correction is required.

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

5. Claims 19, 21-23, 24-25, 28 and 30-36 are rejected under 35 U.S.C. 103(a) as being unpatentable over the patent issued to Antes (PN. 5,032,003).

The reasons for rejections are repeated as follows.

Antes teaches an *article* having an **optically variable surface pattern** which includes a plurality of *regions* (6, Figures 1 and 2) wherein each of the plurality of regions has a greatest diagonal dimension

of less than 0.3 mm or a width dimension of less than 0.21 mm, (please see column 3, lines 5-10), such that the plurality of regions (6) together generates a *macroscopic* graphic (such as the house and the background as shown in Figure 1). Antes teaches that within the plurality of regions *matte structure* can be *embossed* in regions (19, Figure 2) for *dispersing* the incident light *evenly in all direction* without interference, which means *diffusely scattering* the incident light, (please see column 6, lines 1-5). It is implicitly true that the **embossed** matte structure has a *relief surface structure* that may include *geometric lines*, (please see column 1, line 30-35) and can be considered as *line art*. The density of these lines in the matte structure implicitly determines the particular grey scale or intensity of the light diffusely scattered by the matte structure.

This reference has met all the limitations of the claims with the exception that it does not teach explicitly that the matte structures has at least one structure region that has a different level of diffuse scattering of incident light as comparing to another grey scale regions. However Antes does teach that the matte structures could have line spacing ranged between 10 lines per millimeter to 5000 lines per millimeter, (please see column 1, lines 25-35), wherein the line density determines the level of light density or grey scale of the diffusely scattered incident light. It would then have been obvious to one skilled in the art to design the matte structures of the regions (6) to have different level of grey scale for the benefit of adding desired decorative optical effects to the surface pattern of the article.

With regard to claim 21, Antes teaches that the regions (6) could have a dimension of less than 0.21 mm which could gives a 210 micron square although it does not teach explicitly it is of a 120 micro square or less, it would have been obvious to one skilled in the art to modify the dimension of the regions for the benefit of increasing the resolution of the surface pattern.

With regard to claims 22-23, and 25, Antes does not teach explicitly that the matte structure has an image represented in physical characteristics and whether the images are the same or not comparing to other matte structure regions, however the lines structure of the matte structure can be regarded as

representing *an image* and also it would have been obvious to one skilled in the art to design the lines arrangement of the matte structure to represent certain desired graphic images and to make the physical characteristics of one of the matte structure different from the other for the benefit of adding additional decorative optical effect to the surface pattern.

With regard to claim 28, Antes teaches that the regions (6) further comprise diffraction grating regions (7a to 7d) with relief grooves structure that each of the diffraction gratings generates an optical variable image upon illumination of light. Optical variable image means the image varied in response to the viewing direction and position of the observer.

With regard to claim 30, Antes teaches the diffusely scattering matte structure has the ability of enhancing the contrast of the diffracted images stored in the diffraction gratings.

With regard to claims 34-36, Antes teaches that the article may be adapted to apply as security devices for protecting against forgery in identification paper or currency note, (please see column 1, lines 10-15). The idea of matching the image presented by the article and the currency note or credit card is *an obvious matter of design choice* to one skilled in the art since it involves only routine skill in the art and it has the advantages of serving the purpose of anti-forgery. The manners with respect to the actual inspection of the authentication of the security device having the diffraction gratings, recited in claims 35 and 36, do not differentiate the claimed device from prior art device satisfying the claimed structural limitations. Ex Parte Masham, 2 USPQ 2d 1647 (1987).

Response to Arguments

6. Applicant's arguments filed on August 3, 2006 have been fully considered but they are not persuasive.

7. In response to applicant's arguments which state that rejections are based on mistaken in referring to column 1 lines 25-35 of Antes reference for 'diffusely scattering incident light' wherein line 27

specifically refers to 'effective for the diffraction of visible light' which therefore differs from the instant application, the examiner respectfully disagrees. The applicant is respectfully requested to study the Antes reference more carefully, wherein column 1 lines 29-35 specifically discloses *cross -sectional configurations with* ***aperiodic*** *functions contain locally a mixture of spatial frequencies in range such as* ***matte structures*** *for instance can be used'*. Wherein this **aperiodic** function and the matte structures require the light be *scattered* and *diffused* **without** diffraction effect. Column 6, lines 1-5 of Antes teaches further that the **matte structures** disperses the incident light evenly in all direction *without interference* which means the diffusion is non-diffractive and the matte structure is 'non-diffracting grey scale regions with diffuse scattering characteristics', as claimed. The applicant has correctly identified that the *without interference* clearly indicates there is no diffraction from these regions', as stated in the remark. From applicant's arguments one can also reach the conclusion that the matte structures taught by Antes serve as the 'non-diffracting grey scale regions with diffuse scattering characteristics' as claimed in the claims. Applicant is also respectfully requested to study the reasons for rejections more carefully since line 27 of column 1 is not relied upon for the rejections. Antes reference therefore meets the limitations.

Conclusion

8. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of

the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Audrey Y. Chang whose telephone number is 571-272-2309. The examiner can normally be reached on Monday-Friday (8:00-4:30), alternative Mondays off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Drew Dunn can be reached on 571-272-2312. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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